

Appendix G - Manufacturing proposal

Introduction

This appendix covers the students proposal of how the different part in the tool assembly could be manufactured. The numbering of the parts relates to the manufacturing drawings covered in appendix K. Material to be used is also listed in appendix A- Design Basis.

Proposal

No.	Part description	Method	Comment
1	Lifting lug	Milling, Drilling	
2	Main body	Casting, Milling, Drilling	HIP (Hot Isostatic Pressing) was considered. After conversation with Sandvik, this was concluded to not be cost effective. The main body is also confirmed to be possible to manufacture, by "Process Leader". See appendix J for mail correspondence.
3	Secondary lock pin	N/A	Component is used today by Aker Solutions. Identity MN: 10038177.
4	Locking ring	Casting, Milling, Drilling	The locking ring is also confirmed to be possible to manufacture, by "Process Leader". See appendix J for mail correspondence.
5	End cap	Cutting	
6	M30x180		
7	Funnel	Cutting, Bending, Welding, Milling, Drilling	The intention is to bend a plate and thereby weld it, creating the funnel. Brackets housing and the flanges to be welded on to the funnel.
8	M10x40 screws		
9	Top bracket	Milling, Drilling	
10	M10x40 screws		
11	Bottom bracket	Milling, Drilling	
12	Anti-rotation pin	Turning, Drilling	
13	Locking ring clips	3D-print	Recommend to use a high strength printing material, such as Nylon (SLS) - PA 12.
14	M10x30		
15	M10x30		
16	Locking ring handle	Cutting, Bending, Drilling, Welding	The following manufacturing steps is intended: 1. Cut the rods and the circular part the using a industrial saw. 2. Bend the rods. 3. Drill the circular part. 4. Weld it together.

No.	Part description	Method	Comment
17	Indicator, Locking ring	3D-print	Recommend to use a high strength printing material, such as Nylon (SLS) - PA 12
18	Ruler, right	Cutting, Drilling	
19	M10x30		
20	Ruler, left	Cutting, Drilling	
21	M10x30		
22	Sliding rails, Lifting lug	Cutting	
23	M6x20		
24	Support brackets, Locking ring	Cutting, Bending, Glue	Glue a 2 mm thick nylon underlay to the brackets.
25	M10x50		
26	M30x180		
27	Indicator, Lifting lug	3D-print	
28	Screw, M56, Lifting lug	Turning	
29	Screw head	Turning, Milling	
30	M10x40		
31	Transmission pin, Tilted locking dog	Turning, Drilling	
32	M6x40		
33	Guiding pin, Tilted locking dog	Turning, Drilling	
34	Tilted locking dog	Casting, Turning, Cutting	To be cast as a whole ring. Thereby, the profile is made by turning and the dogs finalized by cutting the ring into the required amount.
35	M10x40		
36	Straight locking dog	Casting, Turning	To be cast as a whole ring. Thereby, the profile is made by turning and the dogs finalized by cutting the ring into the required amount.
37	M12x80		
38	M14x50, Guiding screw		
39	Transmission pin, Straight locking dog	Turning, Drilling	